

ABSTRACT OF THE DISCLOSURE

A stay-in-place composite form provides a strong and durable concrete structure. The form includes a composite shell having an inner wall surface defining an enclosure into which concrete may be poured and allowed to harden. The composite shell may be made of one or several layers of fabric having a resin matrix impregnated therein. The concrete hardens to form a concrete core within the enclosure and a liner is affixed to the inner wall surface of the composite shell to protect the composite shell from alkalinity in the concrete core. The liner includes at least one sheet of a water-impermeable material to protect the concrete core from water and other corrosive elements. The fabric layers are selected such that the fibers elongate as the concrete is poured into the enclosure due to a weight of the concrete and partially shrink back to compensate for shrinkage of the concrete as the concrete dries to form the concrete core. Such stay-in-place composite form can be used in prefabricated form to strengthen new constructions.